REMARKS

By this Supplemental Preliminary Amendment, applicants have canceled claims 1-9 and added new claims 20-40. Allowance of pending claims 20-40 in view of the following remarks is respectfully requested.

The following summarizes certain cited references relied upon by the Examiners in the parent application serial numbers 10/060,152 and 09/164,155.

A. Kattemalalavadi, et al. (USPN 5,243,342) (the "'342 patent")

The '342 patent relates to a technique for performing translation between encoding standards along with modifying the power level of a signal using a lookup table rather than performing real-time digital signal processing. The '342 patent does not disclose many elements of claim 20, such as receiving a digital impairment learning signal, obtaining a plurality of transmission levels from the digital impairment learning signal, selecting a first transmission level and a second transmission level from the plurality of transmission levels, and performing an analysis based on the first transmission level and the second transmission level to determine the encoding type of the central office. According to the '342 patent, a signal is determined to be "μ-law PCM encoded because port 120 is a T1 port." Col. 4, lines 7-10. Similarly, a signal is determined to be A-law PCM encoded because port 140 is an E1 port. The Examiner's attention is also drawn to Fig. 5 of the '342 patent, wherein "Step 503 determines whether PCM input value has been compressed using a μ-law algorithm (for T1 equipment). Col. 7, lines 2-4. In other words, the port type (T1 or E1) determines whether a signal is μ-law or A-law PCM encoded rather than an analysis of the transmission levels.

Accordingly, claim 20, and its dependent claims 21-26, should be allowed. Further, independent claims 27 and 34 include limitations similar to those of claim 20. Therefore, claims 27 and 34, and their respective dependent claims 28-33 and 35-40, should also be allowed.

B. <u>Yamakido, et al. (USPN 4,507,792) (the "'the '792 patent")</u>

The '792 patent relates to a device for reducing noise generated in an idle channel in a PCM encoder. To this end, a detector circuit is provided which detects the idle channel and a circuit is connected to the detector circuit which fixes the polarity bit of the PCM signal produce by the PCM encoder. (See abstract, Cols. 1 and 2.) Although the '792 patent describes the aforementioned device based on an A-law encoder, the '792 patent states: "the technique of the present invention is readily applicable to, not only the A-law encoder, but also μ-law and other encoders for communications." Col. 5, lines 38-41. However, the '791 patent does not disclose how A-law or μ-law encoding is determined.

It is respectfully submitted that the '792 patent does not disclose many elements of claim 20, such as receiving a digital impairment learning signal, obtaining a plurality of transmission levels from the digital impairment learning signal, selecting a first transmission level and a second transmission level from the plurality of transmission levels, and performing an analysis based on the first transmission level and the second transmission level to determine the encoding type of the central office.

Accordingly, claim 20, and its dependent claims 21-26, should be allowed. Further, independent claims 27 and 34 include limitations similar to those of claim 20. Therefore, claims 27 and 34, and their respective dependent claims 28-33 and 35-40, should also be allowed.

C. Munter (USPN 4,021,652) (the "'652 patent")

The '652 patent describes a device for deriving a PCM coded word which represents X db of signal level attenuation relative to another PCM coded word. The '652 patent goes on to state that "for PCM companding law which uses 2^n words for coding signals of each plurality (e.g. mu-law), it is possible to derive a corresponding series of 2^n words which represent X db of attenuation relative to the original words." Col. 3, lines 39-44.

However, the '652 patent fails to disclose many elements of claim 20, such as receiving a digital impairment learning signal, obtaining a plurality of transmission levels from the digital impairment learning signal, selecting a first transmission level and a second transmission level from the plurality of transmission levels, and performing an analysis based on the first transmission level and the second transmission level to determine the encoding type of the central office.

Accordingly, claim 20, and its dependent claims 21-26, should be allowed. Further, independent claims 27 and 34 include limitations similar to those of claim 20. Therefore, claims 27 and 34, and their respective dependent claims 28-33 and 35-40, should also be allowed.

D. Petruschka (USPN 4,819,253) (the "'253 patent")

The '253 patent describes method and system for classifying a bit stream as being encoded in A-law or µ-law PCM. The method and system of the '253 patent "is based on examining the incoming bit stream for the appearance of code patterns in certain bit positions that match the statistical distribution of those patterns as they would be expected to appear in speech that is encoded in µ-law or A-law PCM." Col. 1, lines 53-58. "If patterns consistent with

one of the PCM encoding laws are detected, the appropriate decoding device is enabled." Col. 1, lines 58-60.

As described in the '253 patent:

> [N]ote is taken of the fact that the code (bits 2, 3, and 4) representing consecutive segments in μ-law PCM, starting with the segment that represents the lowest amplitude, are: 111, 110, 101, 100, 011, 010, 001 and 000. The codes representing consecutive segments in A-law, starting with the segment representing the lowest amplitude, are: 101, 100, 111, 110, 001, 000, 011 and 010. In both cases, each of the foregoing segment patterns is given as it would be sent over the digital facility, i.e., after bit inversion at the transmitter output. Col. 2, lines 28-38.
>
> In the illustrative embodiment, the signals in a bit stream are observed for a pre-determined time period. For 8 kHz encoded speech, an illustrative test interval of 100 milliseconds is adequate to provide fine enough distribution (if what is being observed is PCM coded speech) that changes in signal amplitude will be represented by adjacent segment patterns of one of the PCM coding laws. In the test period, bits 2, 3, and 4 of each encoded speech sample are observed and a count is kept of the occurrence of each segment code. If what is present in the bit stream is PCM encoded speech, the segment codes representing the statistically more prevalent low speech amplitudes should not only predominate, but the segment code representing the lowest amplitude, namely 111 in μ-law or 101 in A-law should be present. More specifically, the probability density function of the sample magnitude (which is monotonically decreasing for speech) should be demonstrated by the accrued segment code counts. Col. 2, lines 39-57.
>
> Thus, if the sample accrues segment code counts for segment codes 100, 101 and 111 that are some non-zero number, it is highly probable that A-law speech is present since these are three adjacent segment codes representing the lowest amplitude range in A-law. The presence of these segment codes rules out the presence of μ-law encoded speech since, in μ-law, there are segments that have accrued no count (and which have represented lower amplitudes) than some of those for which counts have been accrued in the sample. That is, in μ-law segment code 110 represents a lower amplitude than does 101 or 100 and code 110 should have appeared in the sample if the bit stream represented speech encoded in μ-law. Col. 2, line 58 - Col. 3, line 3.

In other words, the '253 patent analyzes the frequency of occurrences of segment indexes to identify whether a signal is μ-law or A-law encoded. Therefore, the '253 patent fails to disclose many elements of claim 20, such as receiving a digital impairment learning signal, obtaining a plurality of transmission levels from the digital impairment learning signal, selecting a first transmission level and a second transmission level from the plurality of transmission levels, and performing an analysis based on the first transmission level and the second transmission level to determine the encoding type of the central office.

Accordingly, claim 20, and its dependent claims 21-26, should be allowed. Further, independent claims 27 and 34 include limitations similar to those of claim 20. Therefore, claims 27 and 34, and their respective dependent claims 28-33 and 35-40, should also be allowed..

E. <u>Goldstein et al (WO 98/38752) ("Goldstein")</u>

Goldstein describes a pulse amplitude modulated (PAM) mapper that includes a number of different constellations, which are used to support a number of different modem data rates. The mapper receives incoming bits and groups the bits as a function of the desired or agreed upon bit rate, and provides a plurality of each group of bits for PAM code generation. (<u>See</u> abstract.) Goldstein does not disclose, teach or suggest a method of identifying an encoding type of a central office. In a second office action in parent application serial number 10/060,152, the Examiner has referred to pages 5-6 and 11-12 of Goldstein as disclosing selecting transmission levels, scaling transmission levels and determining the encoding type of the central office based on a comparison of transmission levels. However, applicants fail to see any disclosure in Goldstein to that effect or any similarity between the cited sections of Goldstein and the above-recited elements. Applicants respectfully request the Examiner to reconsider his construction of

Goldstein and if the Examiner still remains of the opinion that pages 5-6 and 11-12 Goldstein stand for such disclosure, applicants respectfully request the Examiner for further elaboration on specific sections that Examiner believes show selecting transmission levels, scaling transmission levels and determining the encoding type of the central office based on a comparison of transmission levels.

Applicants respectfully submit that Goldstein does not come close to disclosing, teaching or suggesting a method for use by a modem to determine the encoding type of the central office by receiving a digital impairment learning signal, obtaining a plurality of transmission levels from the digital impairment learning signal, selecting a first transmission level and a second transmission level from the plurality of transmission levels, and performing an analysis based on the first transmission level and the second transmission level, as recited in claim 20.

Accordingly, claim 20, and its dependent claims 21-26, should be allowed. Further, independent claims 27 and 34 include limitations similar to those of claim 20. Therefore, claims 27 and 34, and their respective dependent claims 28-33 and 35-40, should also be allowed.

F. Conclusion

For all the foregoing reasons, an early allowance of claims 20-40 pending in the present application is respectfully requested. The Examiner is invited to contact the undersigned for any questions.

Respectfully Submitted;
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